



A.D. 1870, 2nd NOVEMBER. N^o 2892.

S P E C I F I C A T I O N

OF

URIAL KING MAYO.

ARTIFICIAL TEETH AND PLATES.

LONDON:

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A.D. 1870, *2nd* NOVEMBER. N° 2892.

Artificial Teeth and Plates.

LETTERS PATENT to Urial King Mayo, of the State of Massachusetts, of the United States of America, for the Invention of “**IMPROVEMENTS IN THE PREPARATION OF ARTIFICIAL TEETH, AND IN THE MANUFACTURE OF MOUTH PLATES OR SUPPORTS THEREFOR.**”—A communication from Josephus Brockway, of the State of New York, of the United States of America.

Sealed the 13th January 1871, and dated the 2nd November 1870.

COMPLETE SPECIFICATION filed by the said Urial King Mayo at the Office of the Commissioners of Patents, with his Petition and Declaration, on the 2nd November 1870, pursuant to the 9th Section of the Patent Law Amendment Act, 1852.

5 **TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME, I, URIAL KING MAYO, of the State of Massachusetts, of the United States of America, send greeting.**

WHEREAS I am in possession of an Invention of “**IMPROVEMENTS IN THE PREPARATION OF ARTIFICIAL TEETH, AND IN THE MANUFACTURE OF MOUTH**
10 **PLATES OR SUPPORTS THEREFOR,**” such Invention having been communicated

Mayo's Improvements in the Preparation of Artificial Teeth.

to me by Josephus Brockway, of the State of New York, of the United States of America, and have petitioned Her Majesty to grant unto me, and my executors, administrators, and assigns, Her Royal Letters Patent for the same.

NOW KNOW YE, that I, the said Uriel King Mayo, do hereby declare 5 that the following Complete Specification, under my hand and seal, fully describes and ascertains the nature of the said Invention, and in what manner the same is to be performed, reference being had to the accompanying Drawings, making part of this Specification, of which Drawings Figure 1 is a rear view; Figure 2, a front elevation; and 10 Figure 3, a transverse section of a tooth block prepared for use in accordance with my Invention.

Figure 4 is a top view; and Figure 5, a back view of an upper jaw mouth plate as made and prepared in accordance with my Invention for the reception of artificial teeth. 15

Figure 6 is a top view; Figure 7, a bottom view; and Figure 8 is a transverse section of a lower jaw base or mouth plate as so made.

Figure 9 is a transverse section of the teeth and mouth plate for an upper jaw as combined as herein-after set forth.

With my Invention I am enabled to effect a great change in the art 20 of dentistry, whereby with comparatively little labor and expense I can make in a very short period of time a whole set or a part of a set of artificial teeth of perfect fit and of great durability, as well as not liable to the inconveniences and objections of those made with metallic or vulcanite bases, the substance used by me in the manufacture being 25 what is termed soluble cotton.

I need not expatiate on the great cost of, and the difficulty of making artificial teeth base plates as usually constructed of gold, silver, or other metal, or of the disadvantage of base plates when composed of vulcanite, which usually contain mineral matters very detrimental to the wearers, 30 the vulcanite plates being brittle and often liable to derangement, as such are well known to dentists and others, and it has long been a desideratum to find some good and proper substitute for such base plates.

I have succeeded in discovering a mode by which soluble cotton may be adopted as such substitute. So long ago as A.D. 1859 a Patent 35 I believe was secured in England for its use for dental plates. The shrinkage of this material in drying is very great, it generally occupying

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but one-thirtieth of the space in a solid state to what it does as a liquid or in the state of collodion. This property of the prepared cotton prevented it from being successfully used. In the United States of America attempts to so utilize it have been made by mixing it with mineral
5 or other matters, but the mixture was rendered too brittle and was objectionable in other respects. The hard collodion has been obtained and subsequently broken up, re-dissolved, and afterwards pressed into a mould containing the tooth or teeth. As the material hardened it would shrink so much as to require great force to keep it in connection
10 with the teeth, they often being broken by it; besides though dry or hard on the exterior the interior of the plate often remained for months in a soft state, being subjected to constant shrinkage, all of which was fatal to it for its intended purpose.

In carrying out my Invention I do not press the material in a mould
15 upon or against the tooth or teeth placed therein in order to fix it or them to it and give shape to the material, but I condense the material in a mould and indurate the moulded mass so as to reduce it to a shape closely approximating to such as may be desirable, as, for instance, I make it for an upper jaw plate of the form as shown in Figures 4 and 5,
20 or for a lower jaw plate as shown in Figures 6, 7, and 8.

In case of the blank for the upper jaw plate I make it to cover such part of the jaw or of such and the roof of the mouth as may be desirable. The blank for the lower jaw plate is to be of the form required and to have grooves *a*, *b*, disposed in it exteriorally in manner as shown, such
25 being to serve as supports to the teeth and their backing.

In preparing the plastic material for being moulded I take, for instance, one pound of the "soluble cotton" (by soluble cotton I mean cotton prepared by sulphuric and nitric acid in a manner well known for the purpose of making collodion of such cotton by dissolving it in
30 ether and alcohol or some other suitable substitute) and reduce it to a pulpy state by means of about three pounds of sulphuric ether and twelve ounces of alcohol. It is to be borne in mind that I do not reduce the mass to a liquid but simply to a pulpy or plastic state. In such a state it will shrink to about one-fourth of its bulk in drying.

35 Generally speaking before being fit for use the material has to be strained or otherwise properly treated so as to deprive it of extraneous matters. To accomplish this it may be driven through a sieve or sieves by pressure applied to it; next it is to be forced or condensed under

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great pressure in a mould of the proper shape and having a bulk about four times what the article is to have when dry; next it is to be removed from the preparatory mould and placed in a drying mould, or successively in a series of such similar in form though varying in size, the object being to cause it to retain its general form while shrinking; 5 finally, when nearly dry the blank so moulded and shrunk is to be put into a finishing die or dies and pressed therein so as to consolidate it and bring it to the necessary shape which it is to have as a base plate; next the base plate should be exposed to the atmosphere or to heat so as to thoroughly dry it; the article will then be fit for use. In 10 preparing a tooth or a block of teeth for being fixed to such a base plate, I cover the spurs or pins *c* of such tooth or block A (see Figures 1, 2, and 3) with a mass of the plastic material herein-before described, and dry it on and around the same, especially about the necks of the pins, so as to form thereon when it is dry what I term a "backing" shrunk 15 firmly on and about the pin or pins.

It will be observed that what I term the base plate is to have, first, the necessary approximate shape to fit to the superior or inferior alveolar ridge of either the upper or lower jaw, the fitting it to the ridge being a subsequent matter and effected as follows:—This is to be done by cutting 20 or reducing it by tools to a closer fit, and finally dusting upon the surface a quantity of the material in a comminuted or powdered state, and pouring upon the quantity so dusted on a sufficient quantity of ether or other suitable solvent so as to reduce it to a plastic state; in this condition the plate is to be pressed upon the plaster cast or counter- 25 part of the jaw or the portion thereof to be fitted, and there firmly held by means of elastic clasps or a press until sufficiently dry or set; next the tooth or blocks of teeth prepared with a backing or backings as herein-before explained is or are to be fixed to the base plate, they first being articulated in a manner well known to dentists. Having thus 30 been properly arranged on the base each tooth or block is to be fastened in place thereon by putting or filling into the joints and about the backing a small amount of the powdered material and next applying thereto ether or other proper solvent so as to reduce the mass to a cementing state, whereby when dry it will effect the adhesion of the 35 teeth to the base plate. That part of the base plate which is to fit to the alveolar arch may be in a piece separate from the portion to fit to the alveolar ridge, and be cemented thereto by means of the powdered

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material reduced by a solvent as described, the whole being so as to form the part either with or without one or more air chambers or suction spaces such as are usually formed in the upper surface of the arch. In making a plate in this way the old method of using dies to fit it to the 5 mouth is dispensed with, thereby effecting a saving of a large amount of labor, expense, and time, and being advantageous in other respects.

Having thus described my Invention, what I claim as such is as follows :—

I claim the combination of an artificial tooth or a block of such with 10 a preparative backing as set forth of indurated soluble cotton applied to and surrounding the metallic pin or pins (or the neck or necks thereof) projecting from such tooth or block, all being substantially as and for the purpose or use as specified.

I also claim as a new manufacture and of my Invention an artificial 15 tooth base or mouth plate made of indurated soluble cotton in the new manner and for use, substantially as herein-before described.

I also claim the combination of an artificial tooth base or mouth plate of indurated soluble cotton with one or more artificial teeth or blocks of such, and a backing of indurated soluble cotton previously applied to 20 the pin or pins of such tooth, teeth, block, or blocks, the union of the backing and base being effected by cementation or means as set forth.

In witness whereof, I have hereto set my signature and seal, this
Twenty-first day of October, A.D. 1870.

25

URIAL KING MAYO. (L.S.)

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FIG. 1.

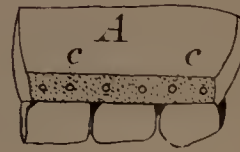


FIG. 2.

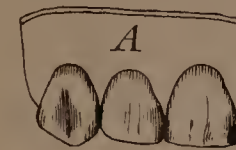


FIG. 3.



FIG. 6.

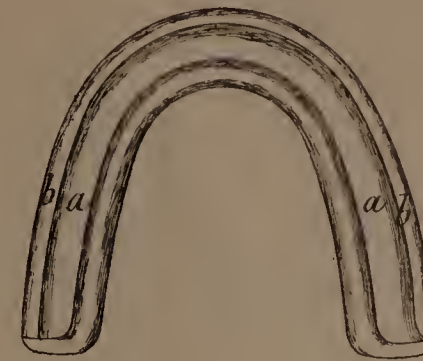


FIG. 7.



FIG. 4.



FIG. 5.



FIG. 8.

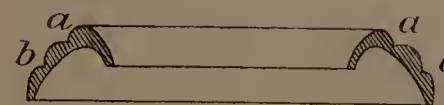


FIG. 9.

